1897 **CATHODE RAY OSCILLOGRAPH** **F Braun (Germany)**

The cathode-ray oscilloscope for the study of the time variation of electron currents was developed by Ferdinand Braun in 1897, the same year in which J J Thomson measured the specific charge of the electron by its deflection in electric and magnetic fields. Ferdinand Braun constructed the first cathode-ray oscillograph at the University of Strassbourg in 1897.

Just like the early X-ray tube, the 'Braun tube' used gas discharge phenomena for the emission and formation of an electron beam. Even after the introduction of a thermionic cathode into cathode-ray tubes by Wehnelt in 1905 an argon atmosphere of about 10^{-3} mm Hg was still retained in commercial oscilloscopes for another 25 years. The effect of ion focusing facilitated the formation of long, filamentary, electron beams.

SOURCE: 'Beam-deflection and photo devices' by K Schlesinger and E G Ramberg *Proc. IRE* p 991, 995 (May 1962)

SEE ALSO: 'On a method for the demonstration and study of currents varying with time'. by F Braun *Wiedemann's Alln.* vol 60, p 552 (1897)

'Cathode rays' by J J Thomson *Phil. Mag.* vol 4, p 293 (1897)

'Ferdinand Braun and the cathode ray tube' by G Shiers *Scientific American* vol 230, p 92 (March 1974)